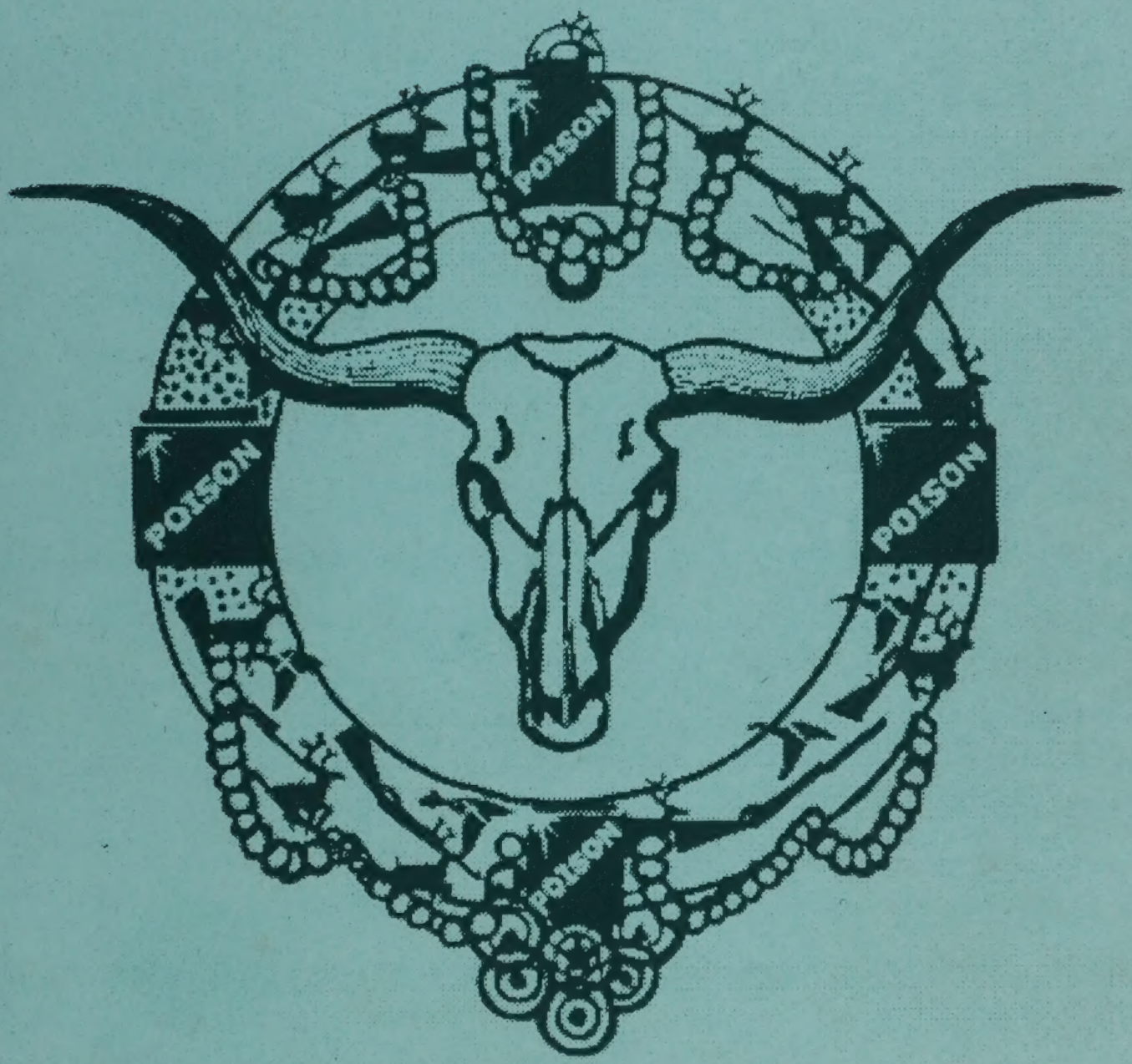
THREATENED FLORA AND FAUNA



Bombay Natural History Society

The **GREEN TEACHER'S KIT** is designed as a resource manual for teachers, advisers and others responsible for Environmental Education in Secondary Schools. It aims to enhance the teacher's aptitude and attitude towards the approaches in Environment Education. It especially equips the teachers with authentic knowledge on natural history which is vital for nature education.

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The Bombay Natural History Society was founded in 1883. Today it is the largest non-governmental organisation (NGO) in the Subcontinent engaged in the conservation of nature and natural resources, education and research in natural history, with members in over 30 countries.

[I] INTRODUCTION

"There is nothing in nature to prove that it cares more for our human species than for daffodils. We may one day vanish as quickly and as radically as thousands of other breeds before us... Mother Nature has no mama's darlings. When the balance of nature is threatened, it always finds a way to restore that balance, at whatever cost. If endangered by us, nature will strike back and show no more concern for Michelangelo, Shakespeare or Mozart than for daffodils. We are dealing here with an overwhelming force, that of life itself and we know next to nothing about it. The only thing we know is- nature has no favourite among the species."

—From Vanishing Species by Romaine Grey

India is one of the 12 mega diversity country that has been identified by the Russian botanist, Navilov, for having several unique flora and fauna. India has a total of 89,451 animal species accounting for 7.31% of the faunal species in the world and the flora accounts for 10.78% of the global total. The endemism of Indian biodiversity is high - about 33% of the country's recorded flora are endemic (species found in one particular area only) to the country and are concentrated mainly in the North-East, Western Ghats, North-West Himalayas and the Andaman and Nicobar islands. However, this rich biodiversity of India is under severe threat owing to habitat destruction, degradation, fragmentation and over-exploitation of resources.

It is true that no animal or plant species is everlasting, and that none has yet existed for more than a few million years without evolving into something different or becoming extinct. This process is most usually slow in nature but the pace of extinction of species in the recent times has been alarmingly swift.

Threatened plants and animals are those whose population in the wild are critically low and whose habitats or home range has been so drastically reduced or damaged that they are in imminent danger of extinction. The World Conservation Union (IUCN) maintains a Red Data Book providing a record of animals and plants which are known to be in danger. It is estimated that by the time the world's primary tropical forests are lost i.e. by about the middle of the 21st century over half the 1.7 million species of plants and animals which have been named so far would have become extinct. India ranks second in terms of the number of threatened mammals, while India is sixth in terms of countries with the most threatened birds.

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Before we describe the top threatened species of our country, let us understand the terminologies that are used by IUCN who have classified the threatened species of the world into different categories. Some of them have been explained below :

1. **Extinct**: This category is only used for species which are no longer known to exist in the wild. Before declaring any species as extinct, scientists carry out repeated searches of the possible habitats and if there are no records for 50 years, then a species is declared as extinct. E.g Indian Cheetah

2. **Critically Endangered**: This includes species which are facing an extremely high risk of extinction in the wild in the immediate future. The population of such species is very low and the threats to its habitats are very high. E.g Asiatic Lion

3. **Endangered**: It includes species that are not critically endangered but are in danger of extinction if the threats for its survival continue operating. Also species whose numbers have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction. E.g Tiger

4. **Vulnerable**: It includes species that are not endangered but are likely to move into the endangered category in the near future if the threats for its survival continue operating. It also include species whose populations are still abundant but are under threat from severe adverse factors throughout their range E.g Giant Clam.

5. **Rare**: This includes species with small populations in the world that are not at present endangered or vulnerable, but are at risk. These species are usually restricted within specific geographical areas or habitats or are thinly scattered over a more extensive range. E.g Kaiser-I-hind butterfly.

Please note the term "threatened" is used in the conservation context for all those species which are in one of the above categories.

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[II] THREATS TO WILDLIFE: AN GLOBAL VIEW

Wildlife, an important natural resource, appears to have borne the brunt of man's developmental activities. Not only has the population of individual species gone down alarmingly but also their habitat has either shrunk drastically or is being systematically made unfit for their existence. These strike at the very root of the ability of wildlife to renew and replenish itself by its own resource.

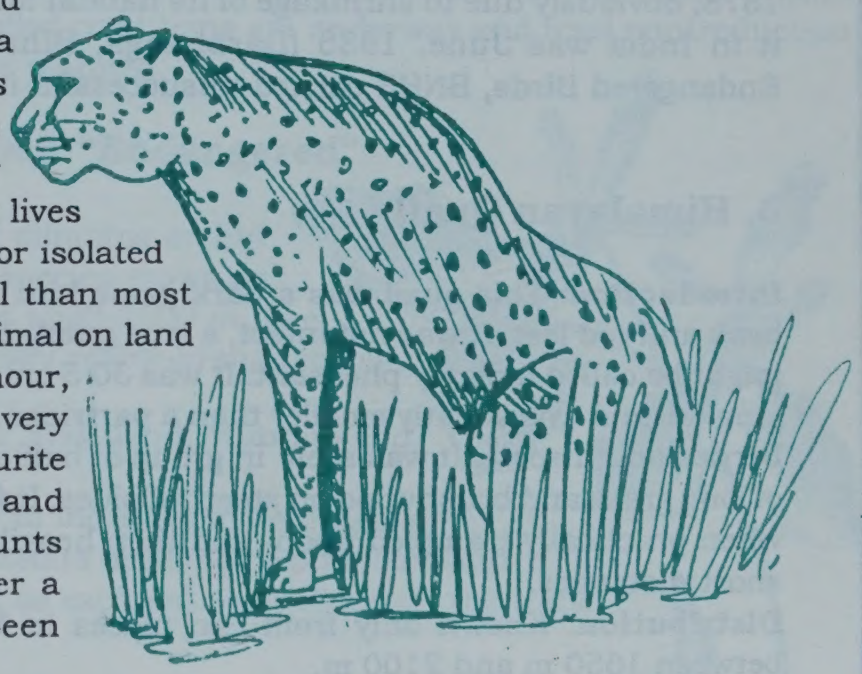
Habitat destruction and habitat loss is the main cause of extinction in India. The continous increase in human population and escalating demand for our natural resources will add to the list of species on the road to extinction. Habitat loss leads to the formation of isolated, small, scattered populations. These small populations are increasingly vulnerable to inbreeding which causes loss of gene pool, high infant mortality and susceptible to environmental changes which all may lead to extinction of the species.

Also exploitation such as hunting, collecting, fisheries and trade are a major threat to the survival of threatened species. Poaching or illegal trade is another insidious threat that has emerged in recent years as one of the primary reasons for the decline in numbers of species, such as the tiger.

The underlying causes of biodiversity loss, however, are poverty, macroeconomic policies, international trade factors, policy failures, poor environmental law/weak enforcement, unsustainable development projects and lack of local control over resources.

[III] EXTINCT ANIMALS: GONE FOR EVER

1. Asiatic Cheetah



Introduction: While the cheetah is alive and flourishing in Africa, it has been extinct in India since 1949. In fact, it is only one of two species known to have become extinct in India in the 20th century. The cheetah is a little smaller than the panther and much lighter in build. It lives in open semi-arid grassland, savanna, scrub or isolated low hillocks amidst plains It is less nocturnal than most members of the cat family. It is the fastest animal on land and can achieve terrific speed of 115-120 km/hour, within a distance of about 370 m, which is very useful for hunting the fleet-footed prey. Its favourite preys are blackbucks, gazelles, deer, hares and birds. It was easily tamed and used for royal hunts and it was so abundant that 'stables' of over a thousand animals were reputed to have been maintained by the Emperor Jehangir.

Distribution: Known distribution of the Cheetah is mainly Africa, and the drier parts of southwestern Asia including India. In the past the species used to occur in northern and Central India. Presently extinct in India and now found as a few scattered survivors in USSR and in northeastern Iran.

Status: The main cause of extinction of this magnificent cat was destruction of habitat due to increase in human habitation and overgrazing by domestic stock, and consequently loss of prey species. Further its use for sports was yet another factor which was responsible for its decline. The possibility of reintroducing the animal in some of the most suitable pockets of its erstwhile distribution, in India has been tried but without any success.

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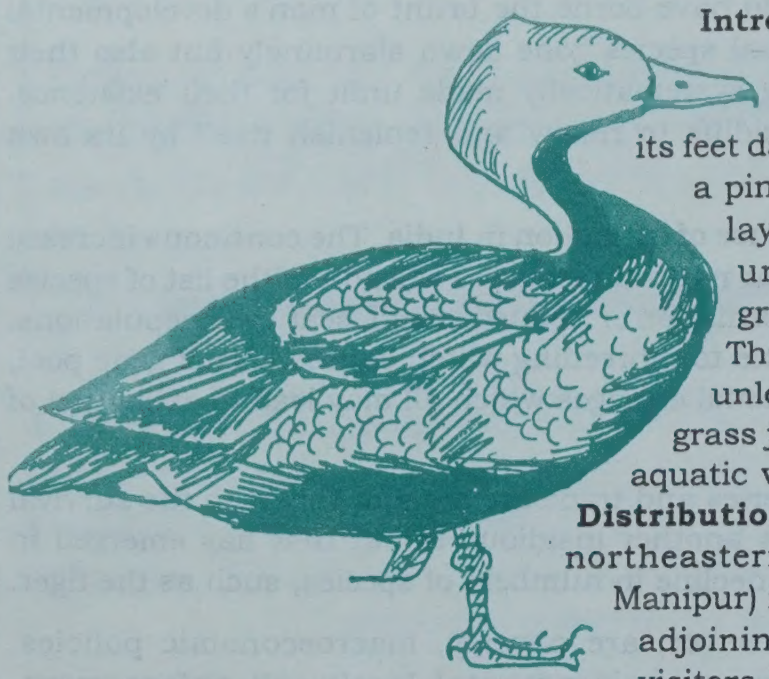
2. Pink Headed Duck



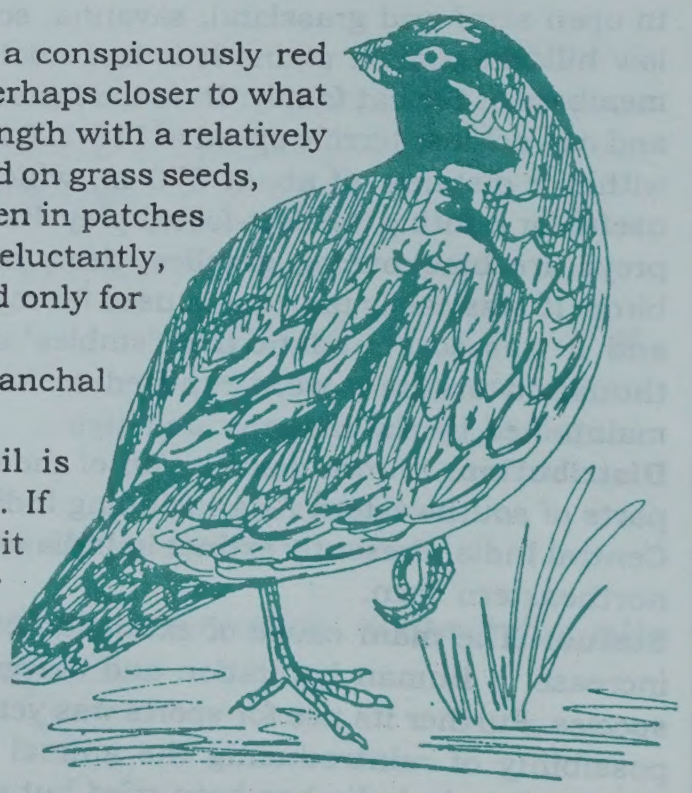
Introduction: The Pinkheaded Duck was of the size of a domestic duck. It was about 60 cm in length. Its bill was reddish pink, eyes red orange and its feet dark with red tint. It was not only unique in having a pink head and neck, but was also the only duck to lay perfectly spherical eggs which looked like unpolished billiard balls. Its habitat was tall grassland, floodplains and small lakes and ponds. This bird was shy and secretive, and was rarely seen unless flushed by chance from ponds amongst tall grass jungles. Being a surface feeder, it used to feed on aquatic vegetable and animal matter.

Distribution: The duck was a resident of northern and northeastern India (Orissa, Bihar, Bengal, Assam and Manipur) in the forested foothills of the Himalayas and the adjoining plains. Some were also recorded as winter visitors to Punjab, Uttaranchal, Maharashtra, Andhra Pradesh and Tamil Nadu. It was also known from Nepal and Myanmar.

Status: Probably extinct, but until the last known area of its former range are surveyed this cannot be confirmed. The duck was probably plentiful in the 1880s. In the 1890s about half a dozen could generally be seen in Calcutta's winter market. Although as much as Rs. 15/- was asked for each dead bird, it was more often sold alive, as its main value was as an ornamental creature. It was not regarded as a good table bird. Its population started declining as early as 1878, obviously due to shrinkage of its habitat and hunting. The last authentic sight record of it in India was June, 1935 (Darbhanga, Bihar). Between 1984-1990 under the Project Endangered Birds, BNHS carried unsuccessful intensive surveys to rediscover the bird.

3. Himalayan Quail

Introduction: This quail was a dark game bird with a conspicuously red beak and red feet. It was not infact, a true quail, but perhaps closer to what might be called a pigmy pheasant. It was 30.5 cm in length with a relatively long tail and was slightly smaller than a partridge. It fed on grass seeds, berries and insects. It was seen in group of half a dozen in patches of long grass and brushwood on steep hillsides. It flew reluctantly, when practically trampled upon- and then heavily and only for short distances.



Distribution: Known only from two places in Uttaranchal between 1650 m and 2100 m.

Status: The threat status of this enigmatic quail is extremely difficult due to the paucity of information. If not extinct, its population is likely to be tiny, and it probably still survives in some remote area in the lower or middle Himalayan range. It was last seen near Jerepani by a Captain Hutton in June 1868. Between 1984-1990 under project Endangered Birds, BNHS carried intensive surveys in most of the known habitats and found that the habitat was altered and doubts were raised about the species's existence..

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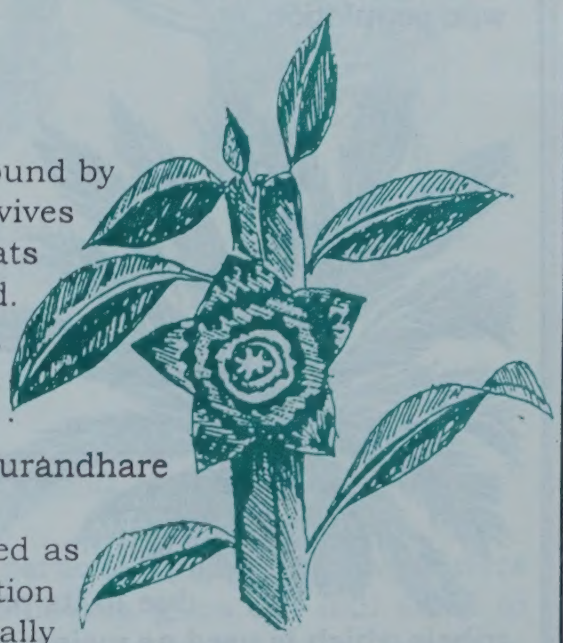
[IV] THREATENED PLANTS

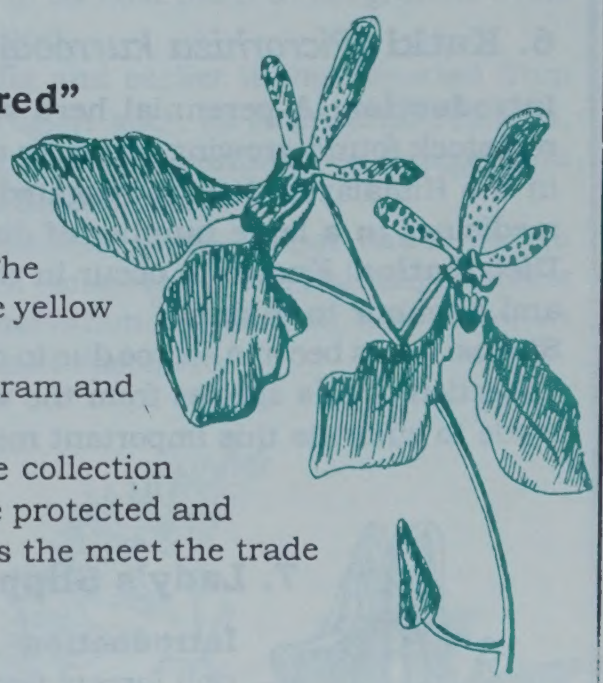
Presently, there is a great awareness on the need to conserve natural plant resources world over. Studies undertaken during the last 3-5 decades on floras in several parts of the world have shown that many plant species are in danger of extinction while some have become extinct recently. Globally, it has been estimated that 10% of world's vascular plant species totaling to about 20,000-25,000 species are under varying degrees of threat. In India there is about 235 vascular plant species that are facing some degree of danger.

1. Dazelle's Frerea (*Frerea indica*) "Endangered"



Introduction: A rare, endangered and endemic plant, originally found by Dalzell on a hill near Junnar in the Poona district where now it survives in very limited number. It has not been seen in other similar habitats in the adjoining hilly areas which are being denuded and eroded. The species grows on exposed bare rocks of hill slopes and cliffs. The flowers are showy purplish starry and succulent having pale-yellow spots on petals. It flowers during September- October.
Distribution: Being locally endemic, it is found in Junnar and Purandhare Hills, Pune District, Maharashtra.
Status: Besides being endemic and rare, it has also been declared as one of the world's 12 endangered species listed by the IUCN. Collection and export is banned. Though the habitat of the species is incidentally free from any threats as the Purandhare Hill fort is a prohibited area for civilians. But exceptional care should be taken to ensure continue care and protection of the habitat and population within the Fort area. Attempts to cultivate it in controlled conditions are underway and final reintroduction of this species back to its original habitats are planned.

2. Red Vanda (*Renanthera imschootiana*) "Endangered"



Introduction: Not a true vanda, this beautiful climbing orchid is of much ornamental value. In nature, this species grows as an epiphyte on large tree trunks at altitudes of 1000-2000 m. The flowers are very showy and large , attractive showy yellow-orange yellow with red spotted petals.
Distribution: It is found in the hills of Manipur, Nagaland, Mizoram and extends into Myanmar and South-east Asia.
Status: It has been rendered endangered due to indiscriminate collection of plants and loss of its habitat. Some of its habitats needs to be protected and the possibility of large scale cultivation should be explored so as the meet the trade demands.

3. Indian Vanila (*Vanilla wightiana*) "Rare"

Introduction: A climbing orchid that climbs on forest trees especially along river-banks. The stems are fleshy and flowers are cream-coloured with pale green tinge. The flowering period is from February-March. As it is closely related to Tropical American Vanilla orchid of commerce, there is possibility of it having some useful chemicals.
Distribution: It is endemic to the southernmost part of the Western Ghats.
Status: The main cause for its rarity is the destruction of habitat and cutting of the trees on which the plants climb. Felling of such trees should be banned and cultivation by seeds, stem cuttings and cell culture should be initiated to replenish the lost population of this rare orchid in the wild.

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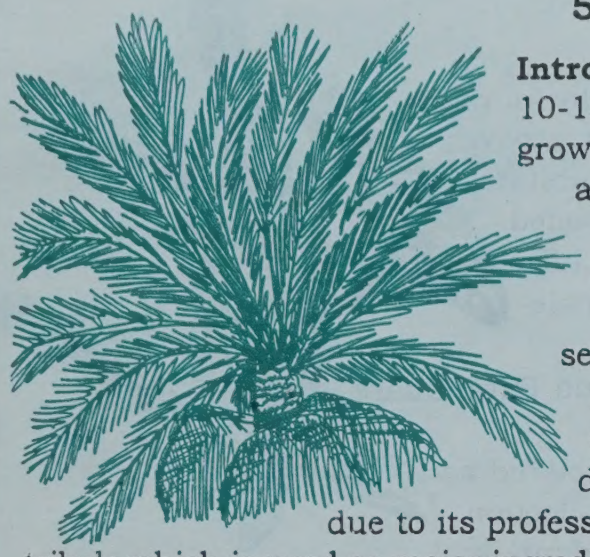
4. Western flytrap (*Ceropegia fantastica*) "Critically Endangered"

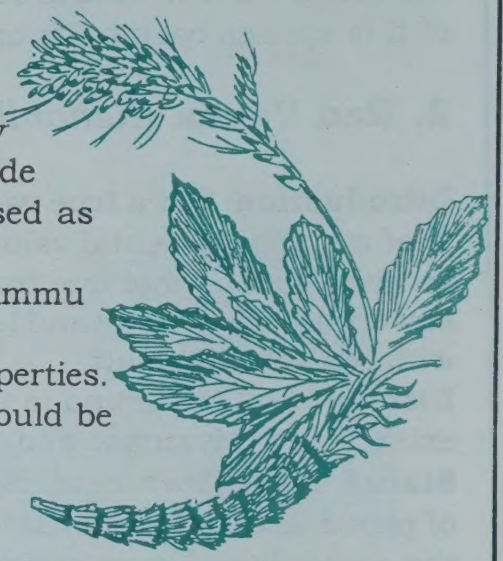
Introduction: A slender twiner that grows in open semi-evergreen forests among bushes on latertic soil. The flowers are very curious at once distinguishable by its calyx which is longer than the flowers. The flowers adopt an unique technique for ensuring pollination, wherein they trap the pollinator within their corolla tube till pollination takes place. Hence they get their common name.
Distribution: Endemic to Western Ghats.
Status: Critically endangered as it has been threatened by loss of habitat and also in absence of any conservation measures undertaken. Cultivation of plants should be initiated so as to stabilize the wild population.



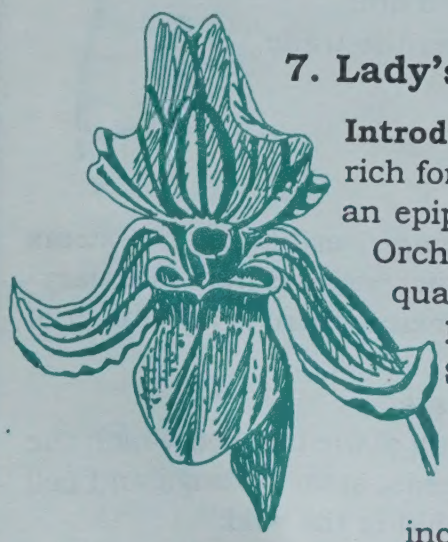
5. Beddome's Cycas (*Cycas beddomei*) "Vulnerable"

Introduction: A graceful palm-like plant whose stem is exposed only 10-15 cm above the ground and has dark brown peeling off scales. It grows in dry deciduous forests occurring on the exposed rocky slopes and along streams. A non-flowering plant that has female and male cones growing on separate trees.
Distribution: Endemic to Cuddapah-Tirupati range of the Southern-eastern ghats in Andhra Pradesh. This species seems to have disappeared from the Cuddapah region and now it is probably confined to the Tirumala hills only.
Status: Vulnerable in the wild and causes for is decline are habitat destruction, forest clearing and excessive collection/exploitation due to its professed medicinal properties. The male cone is pruned away by local tribals which is used as major ingredient in rejuvenating tonics. The plants are often uprooted by avid plant collectors for ornamental use in private gardens. Collection and exploitation or sale should be banned and habitat restoration should be initiated.

6. Kutki (*Picrorhiza kurrooa*) "Vulnerable"



Introduction: A perennial herb with elongate, stout creeping fleshy rootstock found growing on rocky alpine slopes at 3300-5000 m altitude in the Himalayas. It is propagated by seeds and rhizomes. Widely used as medicines in a large number of diseases and ailments.
Distribution: Known to occur in the hilly tracts of Himalayas from Jammu and Kashmir to Sikkim.
Status: It has become scarce due to over-exploitation for its medicinal properties. Collection of this species from the wild should be banned. Attempts should be made to cultivate this important medicinal plant for commercial use.



7. Lady's Slipper Orchid (*Paphiopedilum villosum*) "Endangered"

Introduction: A terrestrial orchid, it thrives in dense forests on cool humus rich forests floors or sometimes on moss covered rock boulders and on trees as an epiphyte. It is one of the most beautiful species among the Lady's Slipper Orchids and is much sought after in horticultural trade for the long lasting quality of the flowers. The species has also been used for developing hybrids.
Distribution: It is found in Mizoram and Myanmar.
Status: Endangered due to large scale collection of the species from the wild and habitat loss. Conversion of the forests are the main causative factors that led to the decline of the species. The species has been listed in threatened plant lists of India and has also been recommended to be included in the Wildlife Protection Act.

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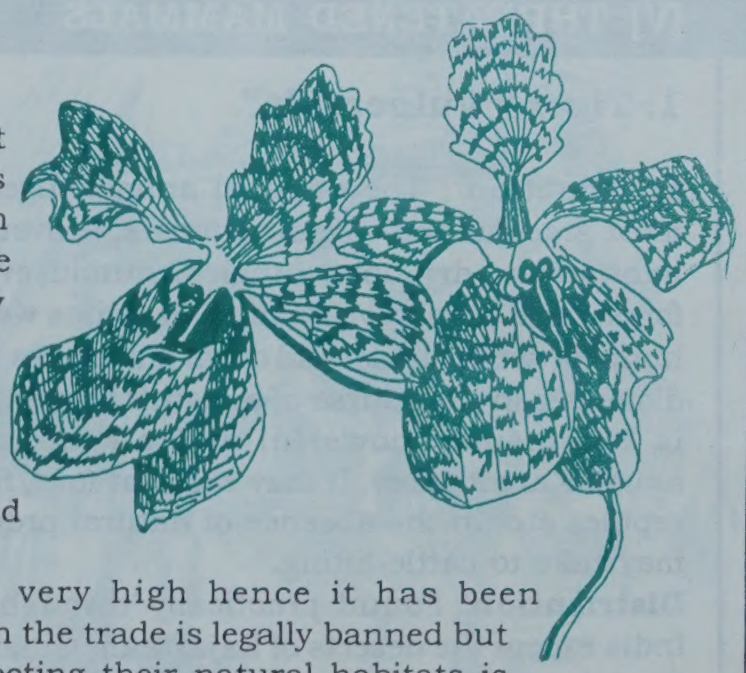
8. Blue Vanda (*Vanda coerulea*) "Rare"



Introduction: An epiphytic orchid with stout, robust stem, found growing in mixed pine forests on hills between 1300-2000 m. It is locally cultivated although its natural populations have been much depleted in the past. The species is rated high in breeding new horticultural varieties. It has been widely used in the breeding of hybrid novelties of Vanda species which are highly valued in horticulture trade.

Distribution: Eastern Himalayas and Northeast region of the country. It is also known from Myanmar and Thailand.

Status: The demand for its beautiful flowers is very high hence it has been indiscriminately collected by traders and locals. Though the trade is legally banned but monitoring of all existing wild populations and protecting their natural habitats is required.

9. Himalayan Rafflesia (*Sapria himalyana*) "Rare"

Introduction: A very interesting root parasite with large showy flowers measuring up to 16 cm across. The flowers gives out foul smell to attract flies for pollination. It grows in dense, undisturbed forests in damp moist places on the roots of other plants. The whole plant is represented by its flower while other parts are much reduced or absent . The roots get attached to its host plant underground while the flower grows above the ground.

Distribution: Endemic to India and earlier it was reported from different areas of Northeast region such as Arunachal Pradesh, Manipur and Meghalaya but it is now confined to Nampdapha Wildlife Sanctuary in Arunachal Pradesh.

Status: Destruction of its habitat is the major cause for its decline. This species has been conserved in the Namdapha forest area as other means of conservation are difficult because of its parasitic habits and host-plant specificity.

10. Rosy Kalanchoe (*Kalanchoe roseus*) "Endangered"

Introduction: A showy horticultural succulent herb with stout stem and rose-coloured flowers that grow in clusters. It grows on sandstone rocks at 1500-1800 m altitudes. Originally discovered in 1881 and it was rediscovered in 1948.

Distribution: Endemic to Northeastern India from Nagaland and Manipur

Status: The last sighting was in 1954. The thick juice from the leaves is used by the local people in snake bite as antidote. As the wild population is very low, it needs to be cultivated in Botanical gardens as a plant of horticultural and medicinal importance.

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[V] THREATENED MAMMALS

1. Tiger " Vulnerable"

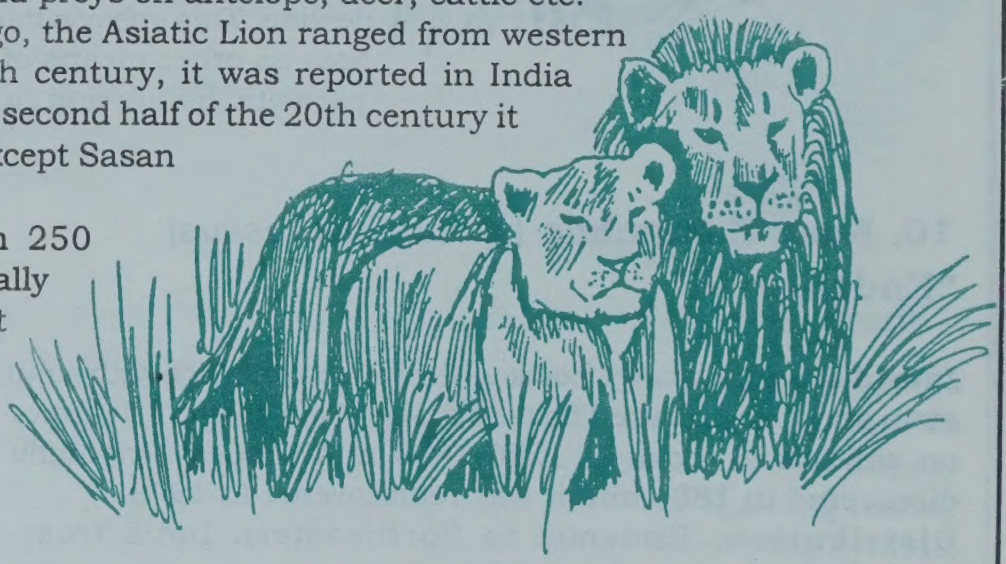
Introduction : The national animal, tiger is one of the most graceful and elegant animals. It lives in varied habitat like dry open jungles, humid evergreen forests and mangrove swamps. It swims well and hunts between sunset and dawn and covers long distances in the course of a night's hunting. It is enormously powerful and all kinds of animals are its prey. It may even eat fowl, fish, reptiles etc. In the absence of natural prey, it may take to cattle-lifting.

Distribution: Found practically throughout India except the deserts of Rajasthan, Gujarat, Punjab, and higher reaches of Himalaya. Also occurs in Nepal, Bhutan, Bangladesh and Myanmar. However the number of tigers is negligible in Goa, Haryana, Tripura and Manipur.

Status: Today in the world there are believed to be 7436 tigers are left of which 3750 are present in India. It is therefore very crucial to save this very charismatic animal. Illegal poaching and loss of habitat has endangered it. There has been a 95% decline in tiger numbers in the 20th century. The shrinking of habitat due to clearance of forestlands for agriculture is the main threat to the tiger. Poaching of tigers as well as its prey animals such as sambar, chital and wild boar, is more serious problem faced by the animal. They have been poached for skin and body parts. The Project Tiger initiated in 1973 established 28 tiger reserves in the country which helped control the declining tiger population.

2. Asiatic Lion " Endangered"

Introduction: A large powerfully built cat with pale yellowish brown to sandy grey coat devoid of any markings. A light and dark coloured shaggy mane adorns the head of the male. It lives in family parties of 8-10 individuals called as a pride in scrub savanna country, interspersed with open dry deciduous forests. It hunts by night and preys on antelope, deer, cattle etc.



Distribution: A little over 100 years ago, the Asiatic Lion ranged from western Iran to eastern India. During the 19th century, it was reported in India from Gujarat to Bihar. However, by the second half of the 20th century it had been shot out of its entire range except Sasan Gir in Gujarat.

Status: There are just less than 250 individuals left alive in India. It is legally protected from hunting and trade, but the enforcement of law is inadequate. The main threats are poaching, loss of habitat to agriculture, decline in number of prey species, overgrazing by domestic stock etc. With the entire wild population of Asiatic lions confined to just one area, that population is highly vulnerable to any kind of biological, climatic or man-made catastrophe. A major disaster within the park could wipe out the entire population at a stroke. Likewise a disease outbreak could eliminate the lion population. Therefore an alternative home for the lions has been identified in the Kuno Palpo sanctuary in Madhya Pradesh.

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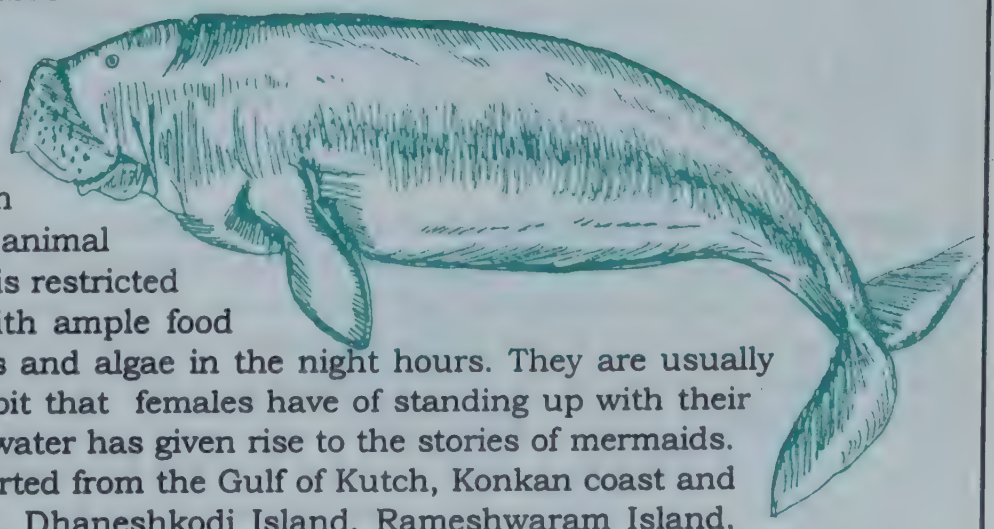
3. Asian Elephant "Vulnerable"

Introduction : Elephants are forest animals requiring a shady environment but having free access to grasses, an important part of their diet, and water. Elephants have a complex social system with strong maternal bonds. Mature males live singly or in small groups and may associate the females while feeding or during mating. They spend more than two third of the day in feeding and may consume 150-270 kg of vegetation in a day. Therefore they need to move from one forest to another. They undertake long migrations in search of appropriate feeding grounds.

Distribution: In India, they are found in northern Uttar Pradesh, Bihar, Orissa, West Bengal, northeastern India, Karnataka, Tamil Nadu and Kerala. Also in Sri Lanka, Nepal, Bhutan, Bangladesh, east up to Vietnam, also South China, Malaysia and Indonesia.

Status: The world population of Asian elephants is between 34000-54000 and of which 17000-22000 are found in India. The major cause of threat to elephant populations in India is the degradation and fragmentation of its habitat as a result of human population explosion and consequent developmental needs. Poaching of elephants for ivory is still a serious problem in India. As only male Asian elephants have tusks, males are heavily poached. Being a migratory animal, the forest corridors play an important role in their survival. Such existing corridors should be strengthened. On the pattern of Project Tiger, an Elephant Project was started in 1992 by the Government of India with the main objective of maintaining all populations of elephants. Also between 1980-1992, BNHS carried out ecological studies on the Asian Elephant.

4. Dugong or Sea Cow "Vulnerable"



Introduction: It is a marine mammal related to dolphins. It has a streamlined body with massive head. The body colour is grey, bluish grey or brownish grey on the back while the belly is white. The animal is clumsy and sluggish in its habits. It is restricted to coastal, shallow, marine habitat with ample food plants. It feeds mostly on marine grass and algae in the night hours. They are usually seen in small groups or singly. The habit that females have of standing up with their young ones clasped while partly above water has given rise to the stories of mermaids.

Distribution: In India, it has been reported from the Gulf of Kutch, Konkan coast and the Malabar coast, and from Tuticorn, Dhaneshkodi Island, Rameshwaram Island, Krusadai Island and Pambam Island on East Coast, as also from the Andaman and Nicobar Islands. It is also found in other tropical coasts of the world.

Status: The dugong has been hunted for its flesh, hide and fat, bones and tusks. The flesh is relished throughout its range. The hide has been used to make good quality leather and fat is used as cooking oil. Bone powder is used for making native medicines while tusks are used to make ivory artifacts. Hunting pressure appears to be the main, if not the only cause of the depletion of the dugong population. It has become scarce practically throughout its range of distribution. Creation of protected areas specially for the conservation of these species will help the declining population.

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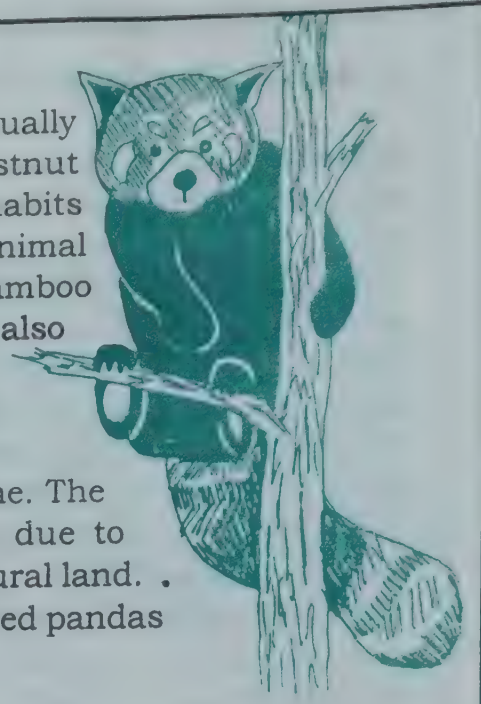
5. Red Panda " Endangered"

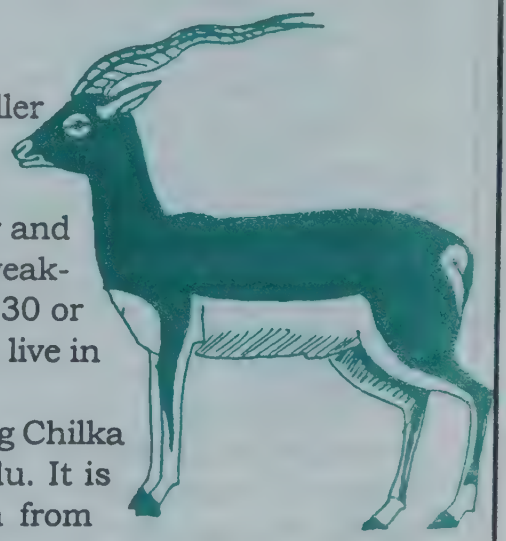


Introduction: The Red Panda is a handsome tree dwelling animal. It is actually a cat-bear and not a bear. It has dense woolly coat that is bright chestnut and fluffy tail is ringed with light and dark shades of rusty red. It inhabits temperate forests at elevation from 1500 m to 3500 m. It is a nocturnal animal and prefers to sleep during day in tree holes or on the open branches. Bamboo sprouts, grass roots, fruits, acorn etc comprises its principle diet but it also takes eggs, birds, mice, insects and their grubs.
Distribution: Central and eastern Himalayas from Nepal to Arunachal Pradesh. Also found in north Myanmar and south China.
Status: It is rated as very rare and endangered as it continues to decline. The major threats to red pandas are loss and fragmentation of habitat due to deforestation (and resulting loss of bamboo) for timber, fuel and agricultural land. . Moreover, it is being trapped and hunted for its beautiful pelt. The fur of red pandas is used to make hats and clothing by locals in China.

6. Himalayan Brown Bear "Endangered"

Introduction: One of the largest and heaviest among the Indian bears. It has brown fur which is thick and shaggy in winter and shorter and thinner in summer. The colour varies in various shades of brown, ranging from very pale to dark and even reddish brown, depending upon the season. It inhabits chiefly the grass slopes above the tree line close to the snow. In winter, it hibernates or remains torpid until the summer. It enjoys a wide variety of food like young sprouts of grass, berries, wild fruits, insects, rat's etc. and at times takes larger animals too.
Distribution: In Indian limits it is known to occur at higher elevations of the western and central Himalayas. It is also known from Afghanistan, northwest Pakistan, Pamirs, Tien Shan and Bhutan.
Status: The population of the bear has greatly depleted in recent years due to human interference in the Indian range of its occurrence. It is now rarely seen and remains confined to the inaccessible parts of the Himalayas. Major threats to survival include habitat and population fragmentation. Also illegal hunting continues to be threat as poachers trade in bear fur, flesh, teeth, claws, fat and gallbladder, which are supposed to have medicinal properties.

7. Blackbuck or Indian Antelope "Vulnerable"



Introduction: The blackbuck is one of the handsomest antelopes. A dweller of the Indian plains it prefers flat open ground covered with grass, scrub, bushes etc. but avoids forests and hilly tracts. After Cheetah, it is said to be the fastest animal which can reach to a speed of 100-104 km/hour and when alarmed moves off in series of leaps and bounds. It feeds on grass, weak-stemmed plants, shrubs, pods of Acacia, fruits, etc. Seen in herds of 10-30 or even over 100 individuals. Each herd has a master buck, (male) who may live in the company of as many as fifty does (females) or more.
Distribution: Occurs throughout the Indian plains, the eastern limit being Chilka lake in Orissa and southwards extends to Point Calimere in Tamil Nadu. It is quite abundant in Rajasthan and Gujarat. Outside India, it is known from Pakistan and Nepal.
Status: It is rated as vulnerable as it was once plentiful all over its range of occurrence, but has disappeared from many places where it was quite common a few decades ago. It has been hunted for its prized meat and as a sporting trophy. The number of blackbuck has fallen from an estimated population of 80,000 in 1947 to about 8000 in 1964. However the population has recovered in recent years. Cattle grazing and human interference in an around its habitat should be stopped.

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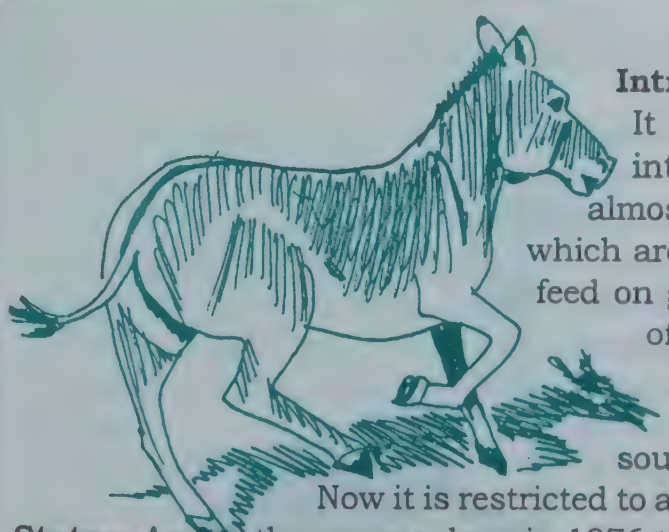
8. Indian Wild Ass " Endangered"



Introduction: The Indian wild ass is larger than the domestic ass. It is the only true wild ass left in the world today hence of scientific interest. It is an inhabitant of salt encrusted flats (on which almost nothing grows) dotted with a few scattered islands or bets, which are the only source of vegetation. They live in herds of 3-10 and feed on grasses, crops such as wheat, cotton, and jowar, which they often raid at night. They cover long distances in search of food. It apparently drinks at least every third day.

Distribution: The Wild Ass used to occur in the past from southwest Iran through Pakistan to northwestern India to Iran. Now it is restricted to a small area in the Little Rann and also other places in Gujarat.

Status: As per the census done in 1976 there were 720 compared to the 4000 individuals in 1956. One of the threats is the surra disease, which is spread by domestic animal. Successive epidemics in 1958 and 1961 caused substantial decline in its population. For the protection of this animal the Little Rann of Kutch has been declared as a sanctuary. Vaccination of domestic stock will help in controlling the spread of the disease. Reclamation and cultivation of marshland should be stopped.

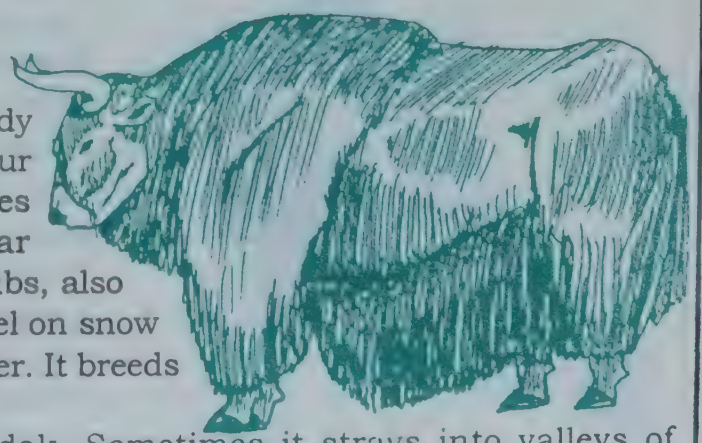
9. Lion-tailed Macaque " Endangered"

Introduction: The lion-tailed macaque is baboon-like in appearance. The colour of the body and the face is black. The tail is short with a tuft of hair at the tip like that of a lion, hence the common name. It is a gregarious animal native of dense evergreen or semi-evergreen rain forests seen on high trees in secluded and unfrequented areas between 800 and 1300 m. With its dark colouring and shy and elusive habits it is seldom seen. It lives in-groups of 4-30 individuals. It feeds on fruits, buds, seeds, flowers, leaves and insects.

Distribution: Endemic to India and is known to occur in the Western Ghats from North Kanara southwards to Kerala and Kanyakumari District, Tamil Nadu.

Status: Today less than 2500 mature individuals are surviving. The shrinkage of habitat has brought considerable decrease in the population of this macaque. Diversion of forests for large irrigation, power and mining projects, extension of roads are not only responsible for the loss of habitat but have opened up previously inaccessible areas to human beings. Modified land use for agriculture, extension of coffee and tea plantation and replacement of endemic forest trees by exotic species like Eucalyptus and wattle are the major factor for its reduction in its numbers. It is also being killed for fur trade and the supposed aphrodisiac and medicinal properties of its flesh by some locals.

10. Yak "Critical"



Introduction : It is a massively built oxen, with short sturdy limbs and drooping head and humped shoulders. The body colour is blackish brown, with little white around its mouth. It lives in coldest, desolate and rugged mountain terrain, near snowline. It moves in small herds and feeds on grass, shrubs, also takes frozen snow and salt encrusted earth. Yak herds travel on snow in a single file carefully stepping on imprints left by the leader. It breeds freely with domestic cattle.

Distribution: Known from Changchen-mo valley in Ladak. Sometimes it strays into valleys of Uttaranchal, through Tibet to northern Nepal and Sikkim. Also found in China.

Status: Yak is important for its gene pool from which domesticated stocks have been derived. Domesticated yak is indispensable beast of burden in the alpine and subalpine mountain terrain and traditionally used for many purposes. Its meat and hide are widely used articles. Wool and tail-tuft are much sought after articles for trade. Besides this disturbance in its habitat, competition from domestic stock and contagious diseases are some of the major threats.

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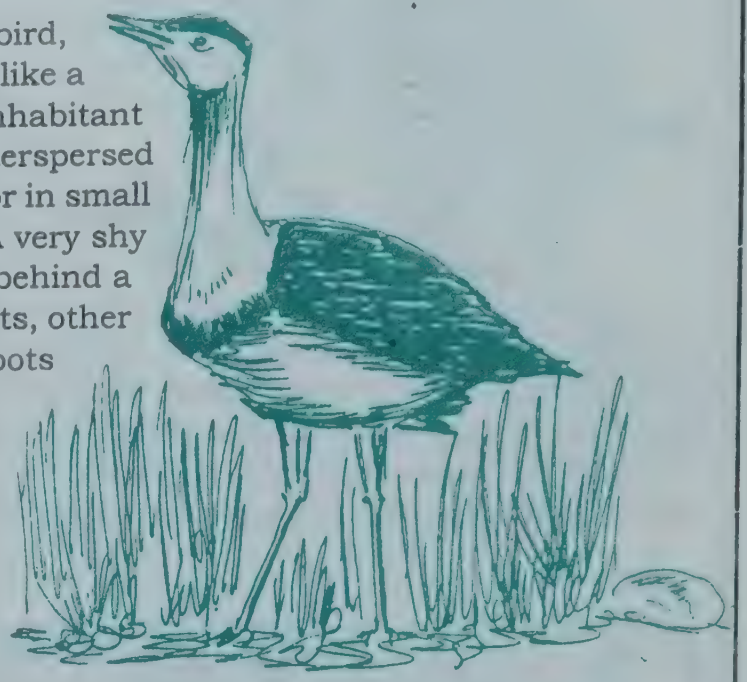
[VI] THREATENED BIRDS

1. Great Indian Bustard "Endangered"



Introduction: A huge buff and black coloured ground bird, with a long neck and long bare legs, looking somewhat like a small ostrich. It is the state bird of Rajasthan. It is an inhabitant of open country having thorny bushes and tall grass interspersed with cultivation. The bird moves about singly, in pairs or in small to large parties of three or four to two dozen or more. A very shy and wary bird, when alarmed it prefers to run to hide behind a bush than fly. Omnivorous in diet which includes insects, other arthropods, lizards, snakes, fruits, grains, tender shoots etc.

Distribution: About a century ago, the bustard was widely distributed from the Central Punjab to Central Tamil Nadu and Western Orissa to Eastern Pakistan. At present, it is seen in the arid and semi-arid areas of Rajasthan, Gujarat, Madhya Pradesh, Andhra Pradesh and Maharashtra.

Status: Endangered because of its very small, declining population, as a result of hunting and continuing agricultural development. In 1980-1987 BNHS had carried out research in three areas Maharashtra, Andhra Pradesh and Madhya Pradesh. The study resulted in establishment of national parks and wildlife sanctuaries for the protection of the bird. The present population could be as low as 500 which is one fourth of the population existed ten years ago.

2. Lesser Florican " Endangered"

Introduction: A grassland bird found all over India that inhabits tall grass patches, scattered bushes and cultivated tracts. It frequents standing crops, especially those of cotton and millet. Feeds on insects, centipedes, lizards, and frogs and also on vegetable matter like shoots, grasses, herbs and fruits. The male makes a harsh, frog-like croak during the courtship display.

Distribution: Virtually endemic to India, although there are persistent records from Nepal, Pakistan and one unconfirmed record from Myanmar. It occurs from Gujarat and Central Rajasthan, east to West Bengal and Orissa and from north-west Uttar Pradesh to south Kerala.

Status: Endangered because it has a very small, declining population, primarily a result of loss and degradation of its dry grassland habitat, hunting and failure of monsoon rains. The rate of decline is predicted to increase in the near future as pressure on the remaining grassland intensifies. Between 1984-1990 BNHS carried out a research project to study the status and distribution of the bird. The present population is of 3530 birds.

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3. Sclater's Pheasant " Vulnerable"

Introduction: An iridescently coloured bird that inhabits deodar, pine, oak, rhododendron and birch forest in the Himalayas between 2600 and 5000 m elevation. It generally frequents open glades, pastures, hills side scrubs and grassy slopes. Found singly, in pairs or in small parties. Feeds on roots, tubers, bulbs and other vegetable matter and also on larvae of insects and worms etc.

Distribution: The pheasant occupies a restricted area of Eastern Himalayas in India, Myanmar, Tibet and Yunnan Meet.

Status: This striking pheasant is poorly known across all of its remote, inaccessible and relatively restricted range. It is vulnerable because it probably has a small population which is naturally fragmented and subject to significant decline. Habitat degradation and over-exploitation for food are presumably the major threats. Also the glossy metallic purple, blue and bronze plumage of the bird were used to decorate head dresses for royalty. Areas like Namdapha in Arunachal Pradesh have been declared as a national park for protection of this bird.

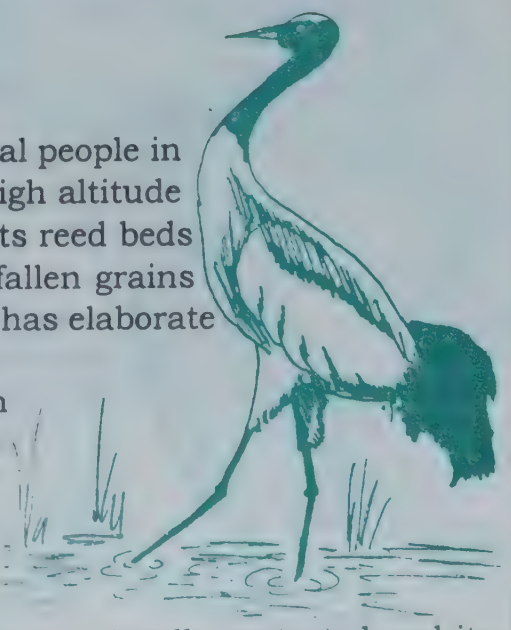
4. Siberian Crane "Critically Endangered"

Introduction: A large snow-white bird of the size of the common crane, standing 140 cm tall. It is a migratory bird from Siberia visiting India during late November and early December, and leaving by the end of March to beginning of April. It is essentially a bird of the wetland and never moves away from the marshy areas. This crane moves about in family parties of three or four, or in small flocks of a dozen or so. It feeds exclusively on various parts of aquatic vegetation.

Distribution: This migratory bird was formerly a widespread winter visitor to northern India in Keoladeo National Park (Bharatpur) in Rajasthan and Payagpur jheel in Uttar Pradesh but now it is only found in Keoladeo National Park.

Status: Critically endangered because it is expected to undergo an extremely rapid decline in the near future, primarily as a result of the destruction and degradation of wetlands in its passage and wintering ground. The wintering site, holding 95% of the population, is threatened by hydrological changes caused by the Three Gorges Dam. The key threat is wetland loss and degradation at the breeding areas and wintering sites due to agricultural development, the development of oilfields and increased human utilization. The global population is between 2900-3000 which winters in China while 9 in Iran and 2 in India.

5. Blacknecked Crane "Vulnerable"



Introduction: This crane is revered symbol of prosperity for the local people in the Ladakh Valley where it breeds. It breeds on the shores of the high altitude lake area and swampy bogs between 4300 and 4600 m, but inhabits reed beds and open fallow paddy fields in their winter quarters. It feeds on fallen grains and probably also on roots tubers, insects and small vertebrates. It has elaborate courtship display in which both the sexes take part.

Distribution: A breeding bird of Central Asia from Qinghai-Tibetan plateau south to Central China with small breeding populations in Ladakh and Bhutan. Very small numbers have wintered in Arunachal Pradesh.

Status: Vulnerable, as it has a small, declining population due to loss and degradation of wetlands, changing agricultural practices and increased human activity in its breeding and wintering ground. It is legally protected and its hunting is prohibited.

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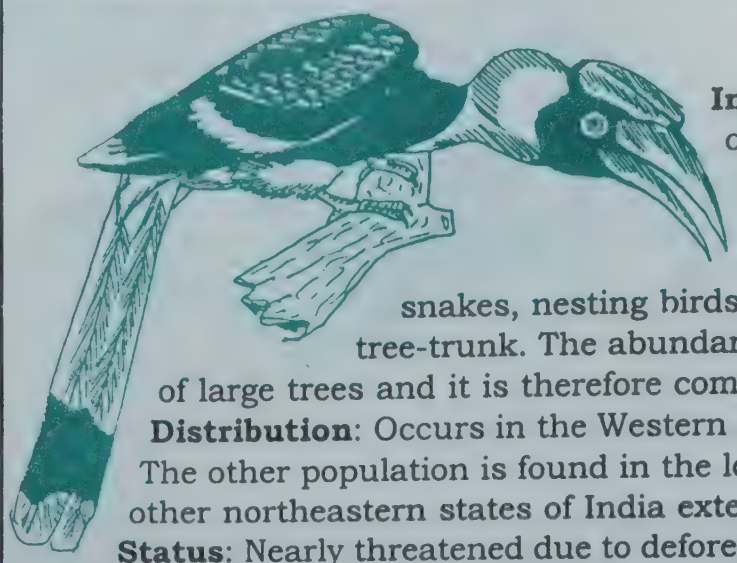
6. Great Pied Hornbill " Nearly Threatened"

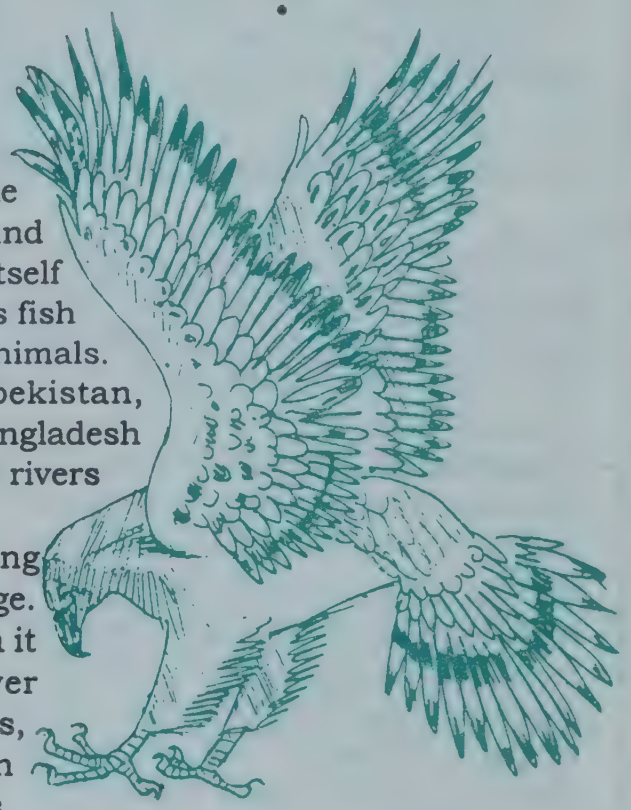


Introduction: The Great Pied Hornbill is an inhabitant of the moist deciduous and evergreen forests, from the plains to about 1500 m altitude. It is very wary bird and its flight is laboured and noisy. Like most other hornbills, it takes mainly fruits but also takes lizards snakes, nesting birds and rats. It makes nest in a natural hollow in a lofty tree-trunk. The abundance of this bird tends to be correlated with the density of large trees and it is therefore commonest in unlogged forest.

Distribution: Occurs in the Western ghats from Khandala in Maharashtra south to Kerala. The other population is found in the lower Himalaya from Nepal east to Arunachal Pradesh, other northeastern states of India extending to Bangladesh.

Status: Nearly threatened due to deforestation resulting in non-availability of suitable nesting trees, Also hunting for the alleged medicinal values of its flesh, fat, bones and casque and the use of the latter two as charm by tribal people, appears to be the main reasons for its dwindling population.

7. Pallas's Fish Eagle " Vulnerable"



Introduction : A large dark brown fish eating eagle with pale golden brown head and a broad white band across the tail. Found around large rivers and jheels. It captures fish by hurling itself on the quarry from the air and seizing it in its talons. Besides fish it feeds on snakes, rats, crabs, water birds and even dead animals.

Distribution: Widespread from Kazakistan, Russia, Uzbekistan, Tajikhistan, Mongolia and China, India, Pakistan, Bhutan, Bangladesh and Myanmar. In India, it is a widespread on lakes and large rivers in the north and north-east of the country

Status: Vulnerable as it is inferred to have small, declining population in wetlands and breeding sites throughout its range. The population is likely to be 10,000 in the world and in India it is very rare and probably close to extinction, with fewer individuals as low as 50. The key threats are habitat loss, degradation and disturbance. Most of its wetlands have been drained or converted for agriculture and human settlements. Also pesticides, industrial effluents in the wetlands have reduced its breeding success.

8. Western Tragopan " Vulnerable"

Introduction : A large colourful bird which generally inhabits thick undergrowth in bamboo in hill forests between 1350 and 3600 m altitude. It moves about singly or in pairs, also in small family parties outside the breeding season. Its food consists of vegetable matter and insects. Roosts on the branches of trees during the night.

Distribution: Originally found in the Western Himalayas from north Pakistan through Kashmir and Himachal Pradesh to Garhwal and possibly Kumaon in Uttaranchal.

Status: Vulnerable because it is sparsely distributed, with a small declining population and continuous forest loss and degradation throughout its restricted range. Loss of habitat and commercial exploitation for trade are the major threats. It is the rarest among Himalayan pheasants having a population of 1600-4800 birds. Hunting of the bird as well as possession of skins, plumage and trade in live birds is prohibited in Pakistan and India.

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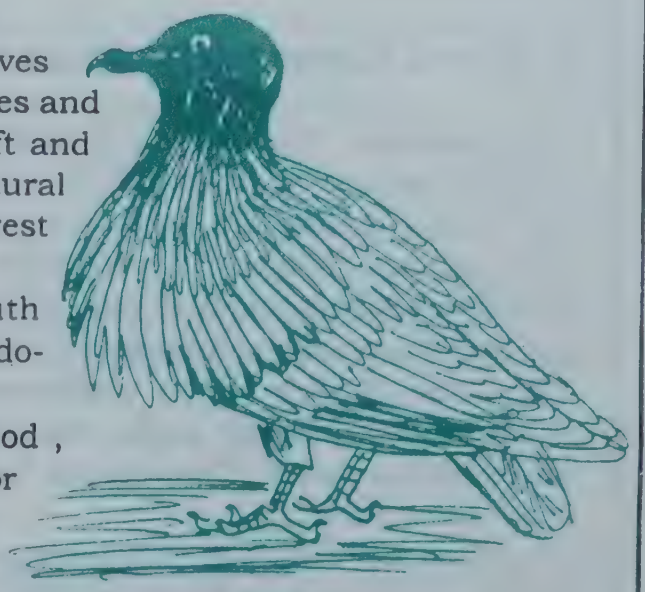
9. Nicobar Pigeon " Nearly Threatened"



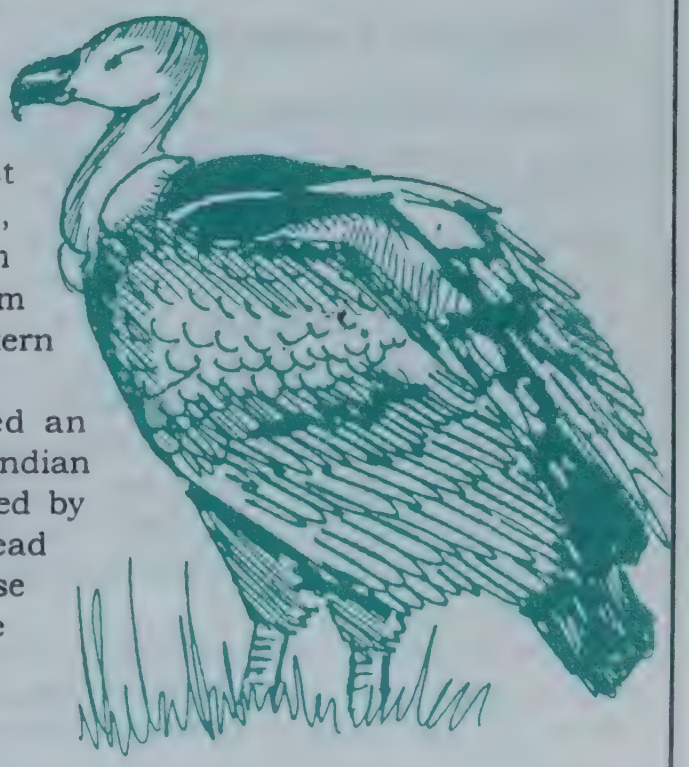
Introduction : A ground pigeon with a brilliant greenish luster. It is an inhabitant of the heavy evergreen forest and freely moves about the forest floor, walking with wings drooping at the sides and pushing aside fallen leaves with the beak. The flight is swift and powerful. It is rather silent but occasionally utters a harsh guttural croak. The food consists of fruits and seeds fallen on the forest floor.

Distribution: Found in the Nicobar group of Islands, south Andaman Island and Cocos island and also in islands of Indo-Australasian region.

Status: Nearly threatened from the rentless trapping for food , pet trade and their gizzard stones. Also clearing of islands for plantation and infestation of rats, cats and other alien predators also act negatively on their population. Encroachment on the habitat of the pigeon and hunting for its flesh and as trophy have practically wiped it out from the Andamans, while on the Nicobar Islands too its position is precarious at least in the Indian part of its distributional range.

10. White-Backed Vulture " Critically Endangered"

Introduction: It was one of commonest vultures with heavy, dirty blackish brown body and naked head and neck. At rest and while banking in the air, the white back is seen. It is a carrion-feeder and useful scavenger on the countryside and in the environs of towns and villages. Earlier when the vulture population was huge, large gatherings used to collect at animal carcasses with astonishing promptness and demolish them with incredible speed. Now such sights have become rare due to plummeting decline in its population.



Distribution: Occurs from south-east Iran, south-east Afghanistan, east Pakistan, India, Nepal, Bhutan, Bangladesh and Myanmar. In India it is found from Himalayas west to Srinagar, east to Arunchal Pradesh, Assam and the north-east hill states, south to the southern Western Ghats in Kerala and Tamil Nadu.

Status: Critically endangered because it has suffered an extremely rapid population decline, particularly across the Indian subcontinent, probably as a result of disease compounded by poisoning, pesticide use and changes in processing dead livestock. In the late 1990s population decline and disease symptoms were noted throughout India and the causative factors from the researches carried out by BNHS indicate that it may be a viral infection.

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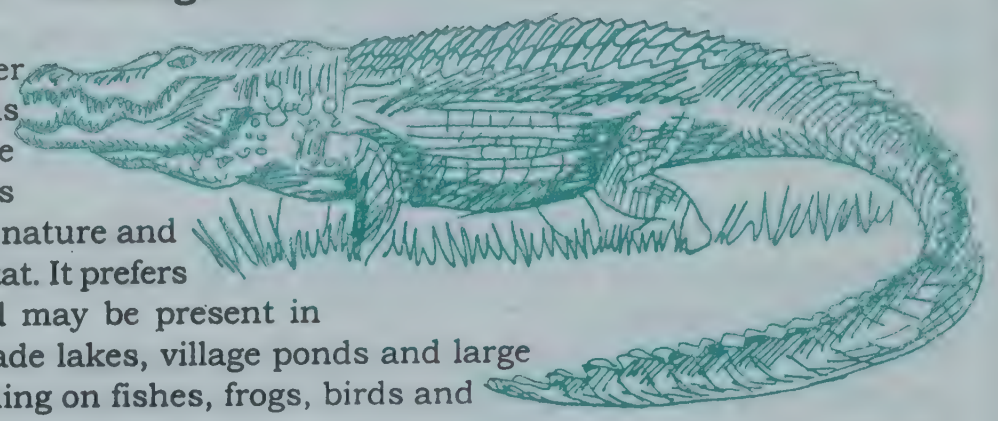
[VII] THREATENED REPTILES & AMPHIBIAN

- **Reptiles**

1. Marsh Crocodile or Mugger " Endangered"

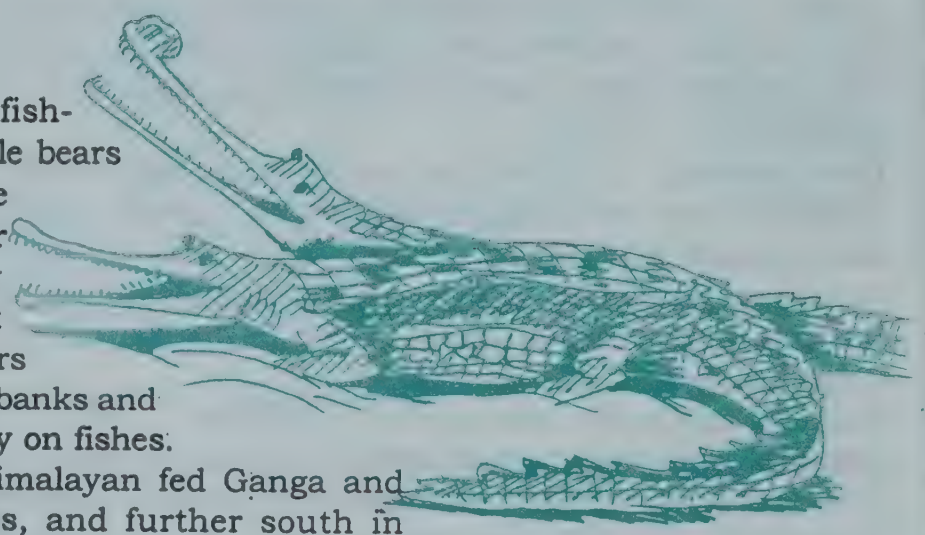


Introduction: The mugger is smaller than the estuarine crocodile which is the largest among all crocodiles. The adult is dark olive and the juvenile is pale with black spots. It is sluggish is nature and is found in any kind of freshwater habitat. It prefers still waters having 3-5 m. depth and may be present in rivers, streams, jungle pools, man-made lakes, village ponds and large irrigation reservoirs. Carnivorous feeding on fishes, frogs, birds and small mammals.

Distribution: Range of distribution includes Iran, Pakistan, India, Bangladesh, Nepal and Sri Lanka. In India it is found in scattered population all over the country, except in the states of Jammu and Kashmir, Himachal Pradesh, Punjab and the northwestern desert region. Its easternmost limit of distribution is Arunachal Pradesh.

Status: In India, there are multiple threats that have rendered the reptile endangered. The most important threat is hunting for its hide and medicinal value of its body parts. The population has also been affected by the predation of its hatchlings by birds like herons and storks. Finally natural calamities like floods and desiccation and habitat destruction have also taken their toll. Though the population of this crocodile had been depleted considerably throughout its range the captive breeding programmes primarily undertaken by the Government of India and the Madras crocodile bank helped the species survive. The present population size is estimated around 2000 in India.

2. Gharial " Endangered"



Introduction: A large, slender-snouted, fish-eating amphibious crocodile. The adult male bears a tough bulbous projection at the tip of the snout, resembling an earthen pitcher or 'ghara', hence the name. It is perfectly adapted to lead an aquatic life. An expert swimmer and an excellent diver too. It prefers large rivers with extensive sand and fgravel banks and islets for basking in the sun. It feeds mainly on fishes.

Distribution: Largely restricted to the Himalayan fed Ganga and Brahmaputra rivers and their tributaries, and further south in Mahanadi river in Orissa. It is also known to occur in the rivers of Nepal, Bangladesh and Pakistan.

Status: In the 19th and early 20th centuries, the gharial was in abundance in many areas, but it is now extinct or extremely depleted throughout its former range. The estimated Indian population was about 75 individuals in 1970 and the species was almost on the verge of extinction. But due to the conservation measures adopted by the Indian government to breed and release the crocodiles helped the species and their population rose to 4000 in 1980. The major factors that had contributed to the extreme depletion of its population, are extensive hunting and trapping for commercial utilization of its skin which is of great commercial demand in the international market, and for its flesh for medicinal use. Also rapid urbanisation and construction of dams have affected the waterways. In addition, its eggs and hatchlings are heavily predated by other animals as well as being collected by tribals.

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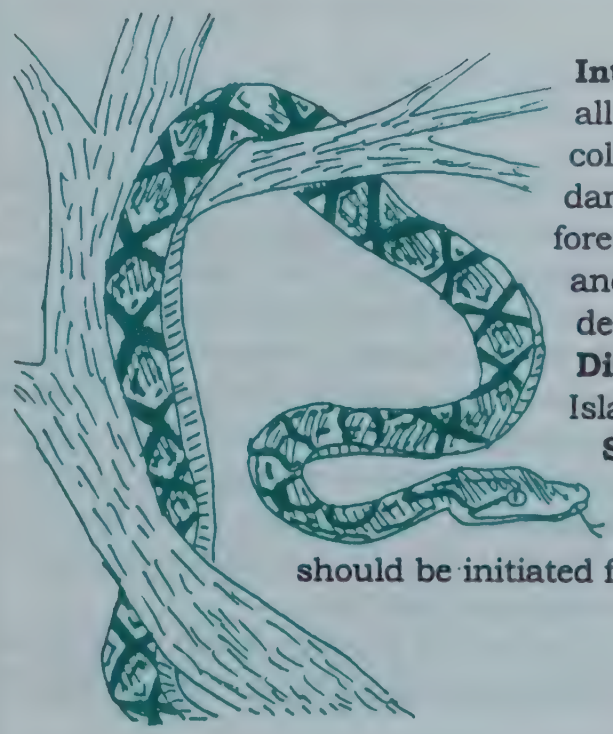
.3. Reticulated Python " Endangered"



Introduction: The Reticulated Python is the longest and heaviest of all the Indian snakes. It attains a length of about 10 m. The body colour is light brown or yellowish above, with dorsal series of large, dark brown, circular or rhomboidal spots. It inhabits wet evergreen forest and is semi aquatic. Its food consists of small mammals, birds and reptiles, occasionally medium-sized mammals like wild boar, deer, cattle and even man become its prey.

Distribution: Distributed throughout northeastern India and Nicobar Islands. Also found in Myanmar to southeastern Asia.

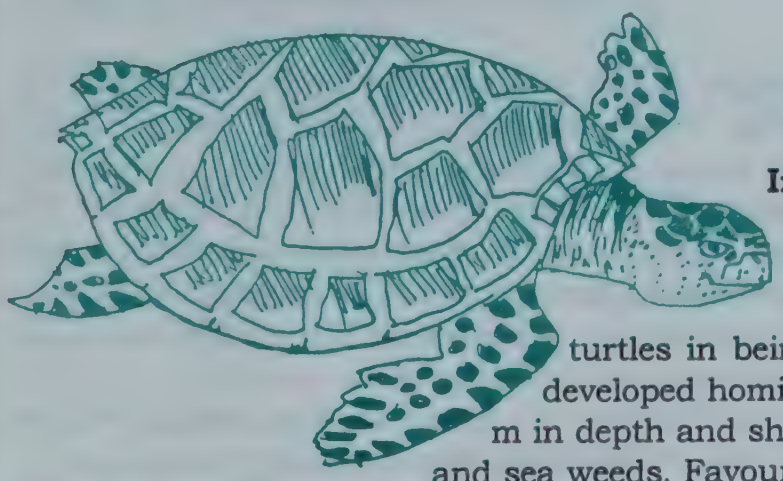
Status: Most threatened species among the Indian serpents, being mainly hunted for its highly prized skin. Strict implementation of law should be done to curb poaching and also captive breeding should be initiated for increasing the wild population.

4. Yellow Monitor Lizard " Endangered"

Introduction: A huge lizard of dark brown colour with a reddish tinge on the body. It is a very good swimmer and prefers to make burrows on muddy bunds around ponds, lakes and canals. Freshwater crabs and small fishes are it main food items.

Distribution: Known from northern India from Punjab to Orissa, West Bengal and Assam. Also from Bangladesh, Nepal and Pakistan.

Status: The population of the lizard has alarmingly dwindled and become extremely endangered throughout the Indian subcontinent primarily due to illegal and extensive exploitation of the adults for their commercially valuable skins, utilization by man for food. Also collection as specimens for colleges and scientific institutions and habitat loss through agricultural uses have also affected the population.



5. Green Sea Turtle "Endangered"

Introduction: The Green Sea Turtle is the largest of the hard-shelled species of marine turtles and is considered to be commercially the most valuable reptile in the world. It is unique among all marine turtles in being mainly herbivorous, highly migratory, with well-developed homing abilities. It frequents inshore waters less than 25 m in depth and sheltered by reefs. It feeds on submerged marine algae and sea weeds. Favourable sandy beaches are selected for nesting.

Distribution: Found in all the tropical and subtropical oceans of the world. It is generally distributed throughout Indian and Indo-Chinese waters.

Status: Owing to its commercial exploitation of its skin and flesh, the turtle has become extremely endangered and its population has alarmingly dwindled throughout the world. In India, the population has declined drastically during the last few decades as a result of direct and indirect human interventions.

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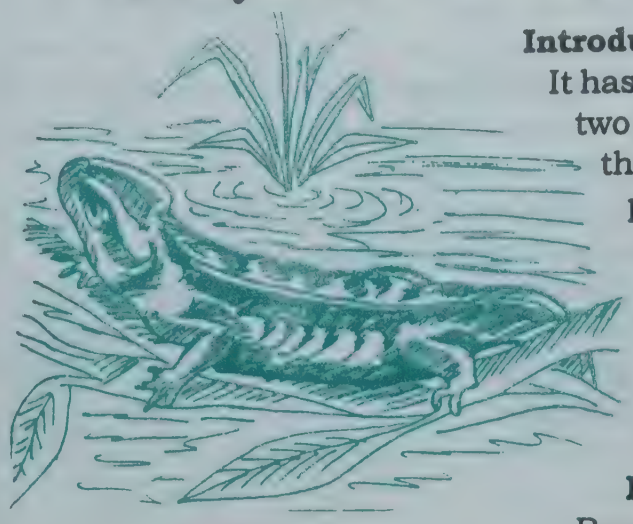
- **Amphibian**

6. Himalayan Newt " Endangered"



Introduction: This the only species of salamander known from India. It has a dark brown having a tubercular long body, depressed head, two pairs of limbs and vertically flattened tail which is longer than the body. It is quite rare and is found in both seasonal and perennial pools in certain hilly pockets of eastern Himalayas. Various localities have been recorded in Darjeeling district of West Bengal, on altitudes between 1260 and 2220. Adults congregate in pools after one or two pre-monsoon showers during April-May for breeding. Hibernation takes place in late October. Its food consists mainly of aquatic vegetation, insect-larvae, tadpoles and earthworms.

Distribution: In India, it has so far been recorded from West Bengal, Sikkim, Arunachal Pradesh and Manipur. Also in Nepal, Myanmar, Thailand and western China.

Status: On account of urbanization this species is becoming rare throughout its range and needs strict protection. Hence its status is endangered now.

[VIII] OTHER THREATENED ANIMALS

1. Relict Himalayan Dragonfly "Vulnerable"

Introduction: This is a unique insect having both dragonfly and damselfly characteristics. The adult wings are stalked like those of damselfly, but the body features are more like those of dragonfly. It is also considered as a living fossil as it has not changed since the Dinosaurs era. They are found at altitudes between 2000 and 2700 m.

Distribution: In India, it is found only in the Eastern Himalaya Mountains, between Darjeeling and the Kathmandu valley in Nepal.

Status: This unique insect is vulnerable as it shares very specific habitat and alteration of habitats and pollution of hill streams are threatening its existence.

2. Kaiser-I-Hind butterfly "Rare"

Introduction: A beautiful swallowtail butterfly with rich green wings which measures 9-2 cm. It is rare and is known to occur at medium and higher elevations in mountainous wooded areas. It usually remains in the tops of trees , from which it only comes down from about 8 to 11 o'clock in the morning when the sun is shining. Its flight is very fast and surprisingly never visits flowers for nectar but feeds on animal juices.

Distribution: Known to occur in Darjeeling, Sikkim, Assam, Bhutan, Meghalaya, Manipur & Myanmar

Status: The butterfly is very local and is never reported to be abundant, although it is fairly widespread. The major threats are habitat loss by deforestation of Himalayan forests and also butterfly collection for foreign trade.

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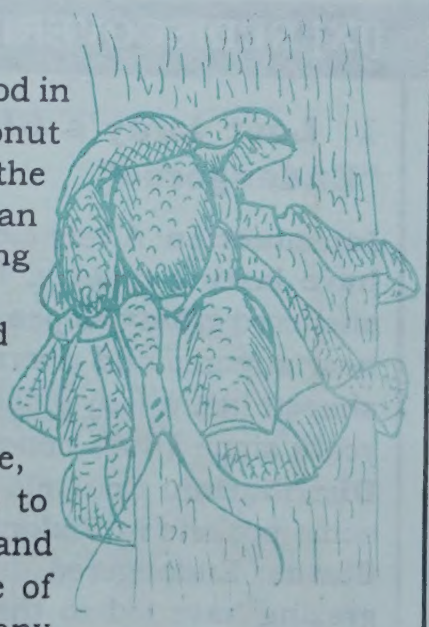
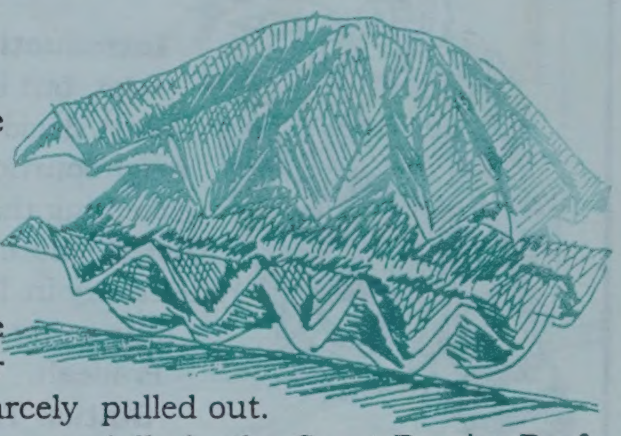
3. Coconut Crab "Rare"



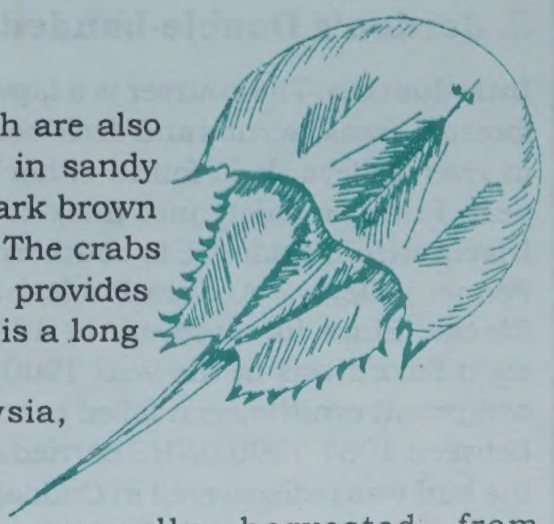
Introduction: The Coconut Crab is probably the largest terrestrial arthropod in the world. It has two huge pinching claws and is known to climb up coconut trees and with their stout pincers bore holes in the coconuts, extract the kernel and feed on it, hence the common name. On coral islands it is an important scavenger and its burrowing activity is probably helpful in moving surface organic matter underground.
Distribution: Found throughout the islands of the Western Pacific and Eastern Indian oceans.
Status: In India, the decline is mainly due to over-exploitation and disturbance from expanding human settlements. Being labeled as rare, protection should be afforded to this species in vulnerable areas. Due to intensive hunting by coral island inhabitants who consider it a delicacy and an aphrodisiac, the crab has been exterminated from its known range of distribution. It has been intensively hunted by the local inhabitants in many places, and is reported to be extinct on a number of islands. Apart from being collected for food, coconut crabs are taken for sale as curios. Dried and mounted specimens are popular as tourist's souvenirs. Breeding populations on small islands are eliminated by intensive collections. Besides introduced pigs, rats, monitor lizards and monkeys have been implicated in coconut crab predation.

4. Giant Clam " Vulnerable"



Introduction: Among the sea clams, the giant clams are the largest and heaviest of living bivalves. The heavy shell is coarsely fluted and toothed with interiors thickly enameled and polished. The giant clam may weigh over 225 kg and attain a length of over 1.2 m. Its foot is short but it attaches itself with strong byssus threads to dead coral or rocks. It has only one adductor muscle connecting the two valves but its pulling power is so great that anything caught between the valves can be scarcely pulled out.
Distribution: Found in the South Pacific and Indian oceans, especially in the Great Barrier Reef. In Indian seas giant clams occur chiefly attached to coral reefs in the Gulf of Mannar and in larger numbers around the Laccadives (Lakshadweep) Islands
Status: Exploitation for the trade is the threatening factor for the clam's existence. All species of the clams have been used extensively by local people from South East Asia. The clam meat is of great demand in Hong Kong, Singapore, Japan and Taiwan. The shells are used for variety of decorative and practical purposes. Small clam shells are used as bowls, ash trays and soap dishes. In order to reduce the exploitation for food, giant clams culture studies are under progress.

5. Horseshoe Crab " Endangered"



Introduction: These crabs are actually marine arachnids which are also called as living fossils. They are marine bottom dwellers living in sandy and muddy bays and estuaries. They are light greenish grey to dark brown with a heavily armoured body and may reach a length of 60 cm. The crabs have been described as 'walking museums' since the carapaces provides a suitable habitat for large numbers of marine creatures. There is a long mobile tail spine which aids forward movements.
Distribution: Found in the Indian coast, Thailand, Malaysia, Singapore, Indonesia, the Philippines and Borneo.
Status: Although still abundant in some areas, horseshoe crabs are exploited intensively by man for animal fodder. They are usually harvested from breeding beaches. They are also used for extraction of Limulus lysate for biomedical purposes.

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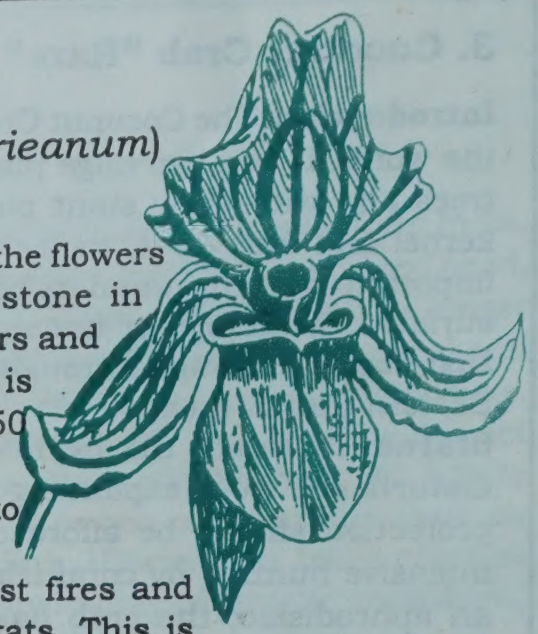
[IX] REDISCOVERIES: LOST & FOUND

1. Lost Lady's Slipper Orchid (*Paphiopedilum fairrieanum*) "Endangered"

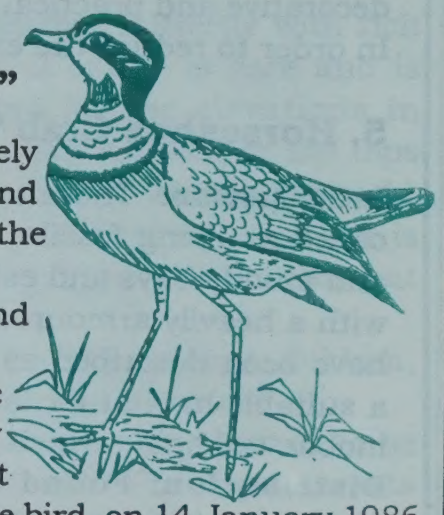


Introduction: A very elegant orchid much valued in horticulture as the flowers have lasting quality. It is reported to grow on crystalline limestone in sheltered grassy slopes, on moss-covered boulders in oak forest floors and near streams and rivers in the altitudes 1400-2200 m. The corolla is shaped like a lady's slipper and also as it was rediscovered after 50 years since 1857, hence its common name.
Distribution: Endemic to the Eastern Himalayas and is restricted to some pockets in Sikkim, Bhutan and Arunachal Pradesh.
Status: Endangered due to over-collection of the specimens, forest fires and grazing have led to the decline of the species in its natural habitats. This is included in the Appendix II of the CITES which restricts its export. Protection of its natural population, habitats and cultivation for reintroduction of plants into original habitats could be adopted for its survival.

2. Forest Owlet "Critically Endangered"

Introduction: The forest spotted owlet is very similar to the commoner spotted owlet, but is slightly larger and has shorter wings and tail. It is a bird of the moist deciduous forests and groves of wild mango, but it also seen in the neighbourhood of streams. Practically nothing was known about its habits excepting that it is fairly diurnal and shy.
Distribution: The bird was known to be endemic to Central India but after its rediscovery in 1997 by Pamela Rasmussen and others, it has been recorded from four other places in northern Maharashtra and South-western Madhya Pradesh.
Status: The bird is critically endangered as it was assumed to be extinct. The last specimen collection was done in October, 1914. Various attempts thereafter by competent ornithologists to locate this bird in Orissa and elsewhere had failed. But a startling discovery after 113 years of this rare bird in 1997 in Maharashtra forests has saved this bird from being added to Extinct animals' list. Presently BNHS is running a project on this owlet to study its status and distribution in India. There are only 25 birds found in the wild so far. The present threats are tree-cutting due to which there is scarcity of trees with suitable nest holes. Also tribals use various owl parts for magic and therefore hunt the owlet.

3. Jerdon's Double-banded Courser "Critically Endangered"



Introduction: The courser is a lapwing-like nocturnal bird. It occurs in sparsely forested areas, scrubs and deciduous bush jungles spread over the rocky ground in river valleys. It is found either in small groups or in pairs throughout the year. Runs for safety into thick cover or takes to the wings when alarmed.
Distribution: Endemic to southern India where it is known from Godavari and Penner valleys of Andhra Pradesh.
Status: Since its discovery in 1848, it was rarely recorded. Last authentic sight record was in the year 1900, since then several thorough searches by competent ornithologist failed to rediscover it. It was believed to be extinct but between 1984-1990 BNHS carried out a project to study the exact status of the bird, on 14 January 1986 the bird was rediscovered in Cuddaph district in Andhra Pradesh by BNHS scientist, Mr. Bharat Bhushan. It is critically endangered as it has a small and declining population, which is thought to be threatened by exploitation of scrub-forest, livestock grazing, disturbance and quarrying. ■

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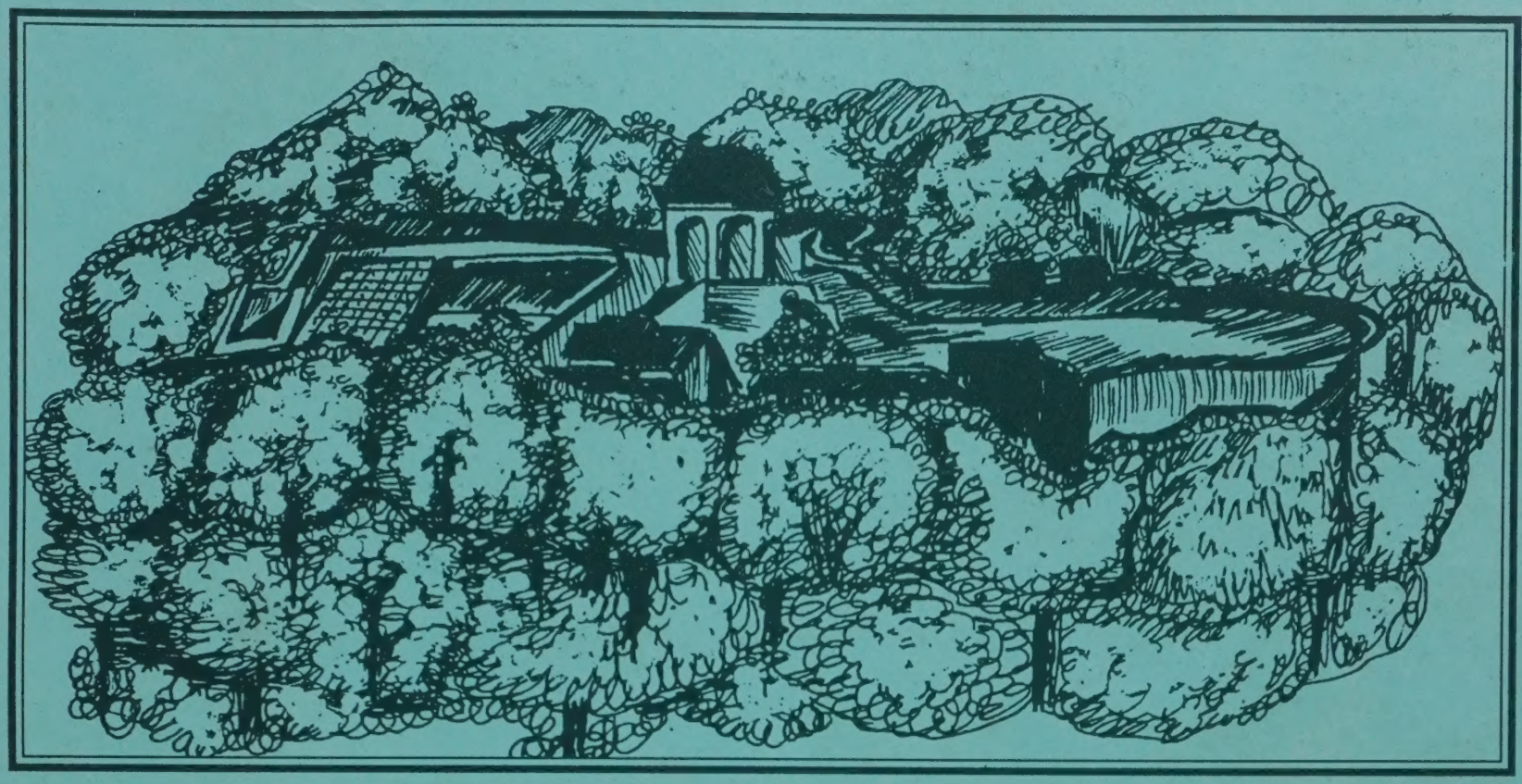


CONSERVATION EDUCATION CENTRE

Nature education has always been, a primary concern of the Society. The Conservation Education Centre (CEC) has been established in Mumbai at Goregaon end to develop a broad-based support of people for conservation of biodiversity. The Centre conducts innovative and interactive educational programmes for different target groups such as children, teachers, teacher trainers, NGOS, corporate groups, government officials. The Centre has been designing and disseminating educational resources to spread awareness about biodiversity conservation. The versatile and enthusiastic team of educators make the joy of learning even more enriching. You are welcome to bring your students for a day's outing at our Centre. Let your students experience nature at close quarters !

For Details Please Contact:

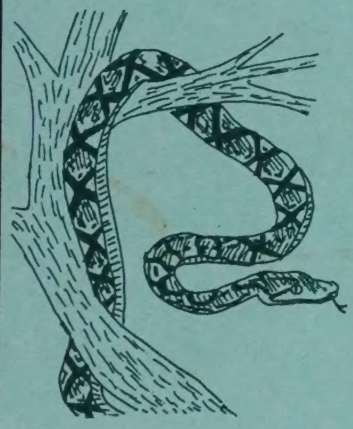
Bombay Natural History Society, Conservation Education Centre,
Near Film City, Gen. Arunkumar Vaidya Marg,
Goregaon (East), Mumbai - 400 065.
Tel.: 022 - 2842 1174 / 2840 2946
e-mail: cecbnhs@vsnl.com

JOIN BNHS TO SAVE NATURE

BNHS Mission

Conservation of Nature, primarily biological diversity,
through action based on
research, education and public awareness.

Are you concerned about the endangered wildlife? Do you feel sad that we lost Cheetah? Does the tree cutting bothers you? Are you willing to do your bit to save your environment? Are you ready to adopt ecofriendly ways in your daily life? If the answers for these questions is YES, then we need you as our member. Today like-minded and concerned people are making a difference to save nature. Even you can make a difference!



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